

What is claimed is:

1. A substrate processing method, comprising:
carrying out a cleaning treatment and a catalyst-imparting treatment of a surface of a substrate as pre-plating treatments; and then

electroless plating a metal film on the catalyst-imparted surface of the substrate,

wherein the cleaning treatment is carried out in a wider area of the surface of the substrate than that area to which a catalyst is imparted by the catalyst-imparting treatment.

2. The substrate processing method according to claim 1, wherein the cleaning treatment as a pre-plating treatment comprises pre-cleaning prior to the catalyst-imparting treatment and cleaning after the catalyst-imparting treatment.

3. The substrate processing method according to claim 1, wherein the area of the surface of the substrate to which a catalyst is imparted by the catalyst-imparting treatment is the same as that area for which uniform plating is necessary.

25 4. The substrate processing method according to claim 3, wherein the cleaning treatment as a pre-plating treatment comprises pre-cleaning prior to the catalyst-imparting

treatment and cleaning after the catalyst-imparting treatment.

5. A substrate processing apparatus, comprising:

5 a cleaning treatment unit for carrying out a cleaning treatment of a substrate; and

a catalyst-imparting treatment unit for carrying out a catalyst-imparting treatment of the substrate,

wherein said respective treatment is carried out as a
10 pre-plating treatment by allowing the surface of the substrate to be in contact with a respective pre-plating treatment liquid while sealing a peripheral portion of the surface of the substrate with a seal ring, the cleaning treatment unit being designed to carry out the cleaning
15 treatment in a wider area of the surface of the substrate than that area to which a catalyst is imparted in the catalyst-imparting treatment unit.

6. The substrate processing apparatus according to
20 claim 5, wherein the cleaning treatment unit and the catalyst-imparting treatment unit have the same construction except that the seal rings have different opening areas.

7. The substrate processing apparatus according to
25 claim 5, wherein the area of the surface of the substrate to which a catalyst is imparted in the catalyst-imparting treatment unit is the same as that area for which uniform plating is necessary.

8. The substrate processing apparatus according to claim 7, wherein the cleaning treatment unit and the catalyst-imparting treatment unit have the same construction except that the seal rings have different opening areas.

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9. A substrate processing unit, comprising:
a substrate receiving ring to which a seal ring is mounted;

a vertically movable substrate holder having a substrate fixing ring for holding a substrate by nipping a peripheral portion of the substrate between the substrate fixing ring and the seal ring; and

a temporary retaining section, mounted to the substrate receiving ring and positioned around the seal ring, for temporarily retaining the substrate while forming a space between the substrate and the seal ring.

10. The substrate processing unit according to claim 9, wherein the substrate processing unit comprises a pre-plating treatment unit for carrying out a pre-plating treatment of the substrate prior to plating.

11. The substrate processing unit according to claim 10, wherein the pre-plating treatment unit is a catalyst-imparting treatment unit for imparting a catalyst to the surface of the substrate.

12. The substrate processing unit according to claim 10, wherein the pre-plating treatment unit is a cleaning treatment unit for cleaning the surface of the substrate.

5 13. The substrate processing unit according to claim 9, wherein the substrate receiving ring and the substrate fixing ring hold the substrate with its front surface facing downward.

10 14. The substrate processing unit according to claim 13, wherein the temporary retaining section is comprised of a plurality of temporary retaining pins which are biased upwardly by an elastic member, and which lower integrally with the substrate holder against the elastic force of the 15 elastic member as the substrate holder lowers, and return to the original position as the substrate holder rises.

15. The substrate processing unit according to claim 14, wherein the substrate processing unit comprises a pre- 20 plating treatment unit for carrying out a pre-plating treatment of the substrate prior to plating.

16. The substrate processing unit according to claim 15, wherein the pre-plating treatment unit is a catalyst- 25 imparting treatment unit for imparting a catalyst to the surface of the substrate.

17. The substrate processing unit according to claim 15, wherein the pre-plating treatment unit is a cleaning treatment unit for cleaning the surface of the substrate.

5 18. The substrate processing unit according to claim 14, wherein the head portion of each temporary retaining pin has a forward tapered surface for guiding the circumferential end surface of the substrate and positioning the substrate.

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19. The substrate processing unit according to claim 18, wherein the substrate processing unit comprises a pre-plating treatment unit for carrying out a pre-plating treatment of the substrate prior to plating.

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20. The substrate processing unit according to claim 19, wherein the pre-plating treatment unit is a catalyst-imparting treatment unit for imparting a catalyst to the surface of the substrate.

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21. The substrate processing unit according to claim 19, wherein the pre-plating treatment unit is a cleaning treatment unit for cleaning the surface of the substrate.